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1 Routine/Function Prologues

1.1 Fortran: Module Interface *obsradforcing_module.F90* (Source File: *obsradforcing_module.F90*)

This module contains interfaces and subroutines that controls the incorporation of observed radiation forcing

REVISION HISTORY:

14Nov02 Sujay Kumar Initial Specification

INTERFACE:

```
module obsradforcing_module
  implicit none
```

ARGUMENTS:

```
real, pointer :: oswdata1(:)
real, pointer :: oswdata2(:)
real, pointer :: oblwdta1(:)
real, pointer :: oblwdta2(:)
integer :: sstat1, sstat2, lstat1,lstat2
```

1.1.1 LIS_obsradforcing_init (Source File: *obsradforcing_module.F90*)

INTERFACE:

```
interface LIS_obsradforcing_init
  module procedure rad_forcing_init
end interface
```

1.1.2 LIS_get_obsrad_forcing (Source File: *obsradforcing_module.F90*)

INTERFACE:

```
interface LIS_get_obsrad_forcing
  module procedure get_obsrad_forcing
end interface
```

1.1.3 rad_forcing_init (Source File: *obsradforcing_module.F90*)

Allocates memory for variables required for radiation forcing interpolation

INTERFACE:

```
subroutine rad_forcing_init()
```

USES:

```
use lisdrv_module, only:lis
use grid_spmdMod
use radforcing_pluginMod, only :radforcing_plugin
```

CONTENTS:

```
if(lis%f%radsrc.gt.0) then
    call radforcing_plugin
    if(masterproc) then
        call defnatresrad(lis%f%radsrc)
        allocate(obsodata1(lis%d%ngrid))
        allocate(obsodata2(lis%d%ngrid))
        allocate(oblwdata1(lis%d%ngrid))
        allocate(oblwdata2(lis%d%ngrid))
    else
        allocate(obsodata1(gdi(iam)))
        allocate(obsodata2(gdi(iam)))
        allocate(oblwdata1(gdi(iam)))
        allocate(oblwdata2(gdi(iam)))
    endif
endif
```

1.1.4 get_obsrad_forcing (Source File: *obsradforcing_module.F90*)

Calls the routines that read observed radiation forcing methods

INTERFACE:

```
subroutine get_obsrad_forcing
```

USES:

```
use lisdrv_module, only: lis, grid
use grid_spmdMod
use driverpardef_module
```

CONTENTS:

```

sstat1 = 0
sstat2 = 0
lstat1 = 0
lstat2 = 0
if(lis%f%radsrc.gt.0) then
    call MPI_GATHERV(grid(1:gdi(iam)),gdi(iam), &
                      MPI_GRID_STRUCT,grid,gdi,gdisp,MPI_GRID_STRUCT, &
                      0,MPI_COMM_WORLD, ier)
    if(masterproc) then
        call getrad(lis%f%radsrc)
    endif
    call MPI_BCAST(sstat1, 1,MPI_INTEGER,0, &
                   MPI_COMM_WORLD, ier)
    call MPI_BCAST(sstat2, 1,MPI_INTEGER,0, &
                   MPI_COMM_WORLD, ier)
    call MPI_BCAST(lstat1, 1,MPI_INTEGER,0, &
                   MPI_COMM_WORLD, ier)
    call MPI_BCAST(lstat2, 1,MPI_INTEGER,0, &
                   MPI_COMM_WORLD, ier)
    call MPI_BCAST(lis%f%findagrtme1,1,MPI_INTEGER,0, &
                   MPI_COMM_WORLD, ier)
    call MPI_BCAST(lis%f%findagrtme2,1,MPI_INTEGER,0, &
                   MPI_COMM_WORLD, ier)
    if(lis%f%findagrtme1 ==1 .or. &
       lis%f%findagrtme2==1) then
        if(npes > 1) then
            call scatter_rad_data()
        endif
    endif
    call timeinterprad(lis%f%radsrc)
endif

```

1.1.5 scatter_rad_data (Source File: obsradforcing_module.F90)

Distributes radiation forcing data on to the compute node.

INTERFACE:

```
subroutine scatter_rad_data()
```

USES:

```
use grid_spmdMod
use lisdrv_module, only : lis
```